CLAIMS

What is claimed is:

1. A valve assembly for reciprocating compressors having a cylinder, a cylinder head and a valve assembly arranged between the cylinder and cylinder head, the valve assembly comprising:

an exhaust hole plate having an exhaust hole communicating with the cylinder;

a reed valve plate having a reed valve to open or close the exhaust hole of the exhaust hole plate, the reed valve being integrally formed in the reed valve plate by cutting a predetermined portion of the reed valve plate, with a junction end and a free end formed at first and second ends of the reed valve, respectively;

a stopper plate having a stopper to limit an opening ratio of the reed valve within a predetermined range, the stopper being integrally formed in the stopper plate by cutting a predetermined portion of the stopper plate, with a junction end and a free end formed at first and second ends of the stopper, respectively, the stopper being bent toward the cylinder head at a predetermined angle of inclination relative to the stopper plate, with an elastic support part provided at the free end of the stopper so as to be elastically supported by a pressure unit of the cylinder head and provide an elastic force to the stopper; and

the pressure unit provided on a surface of the cylinder head so as to support the stopper and allow the stopper to pre-pressurize the reed valve.

2. The valve assembly according to claim 1, wherein the elastic support part is provided by bending the free end of the stopper toward the cylinder head at a predetermined angle of inclination.

3. The valve assembly according to claim 2, wherein the pressure unit comprises:

a first pressure projection projected from the cylinder head at a position corresponding to the junction end of the stopper, thus compressing the junction

end of the stopper;

a second pressure projection projected from the cylinder head at a position corresponding to the elastic support part of the stopper, thus compressing the elastic support part of the stopper; and

a third pressure projection projected from the cylinder head at a position corresponding to an intermediate point of the stopper between the junction end and the free end of the stopper, thus compressing the intermediate point of the stopper.

4. The valve assembly according to claim 3, wherein the second pressure projection is slightly longer than the first pressure projection, and the third pressure projection is slightly shorter than the first pressure projection, so that the first, second and third pressure projections support the stopper while bending the stopper into a bow shape at a position between the cylinder head and the exhaust hole plate, and the free end of the reed valve is pre-pressurized by the elastic support part of the stopper which is compressed by the second pressure projection.

5. The valve assembly according to claim 4, wherein the third pressure projection is eccentrically positioned between the first and second pressure projections, and the exhaust hole is formed on the exhaust hole plate at a position corresponding to the third pressure projection.

6. The valve assembly according to claim 5, wherein the third pressure projection is positioned to be eccentric toward the second pressure projection.

7. The valve assembly according to claim 6, further comprising:

a depression formed on a surface of the exhaust hole plate at a position around the exhaust hole, so that the reed valve closes the exhaust hole while a part of the reed valve comes into contact with areas of the exhaust hole plate around the exhaust hole and the depression.